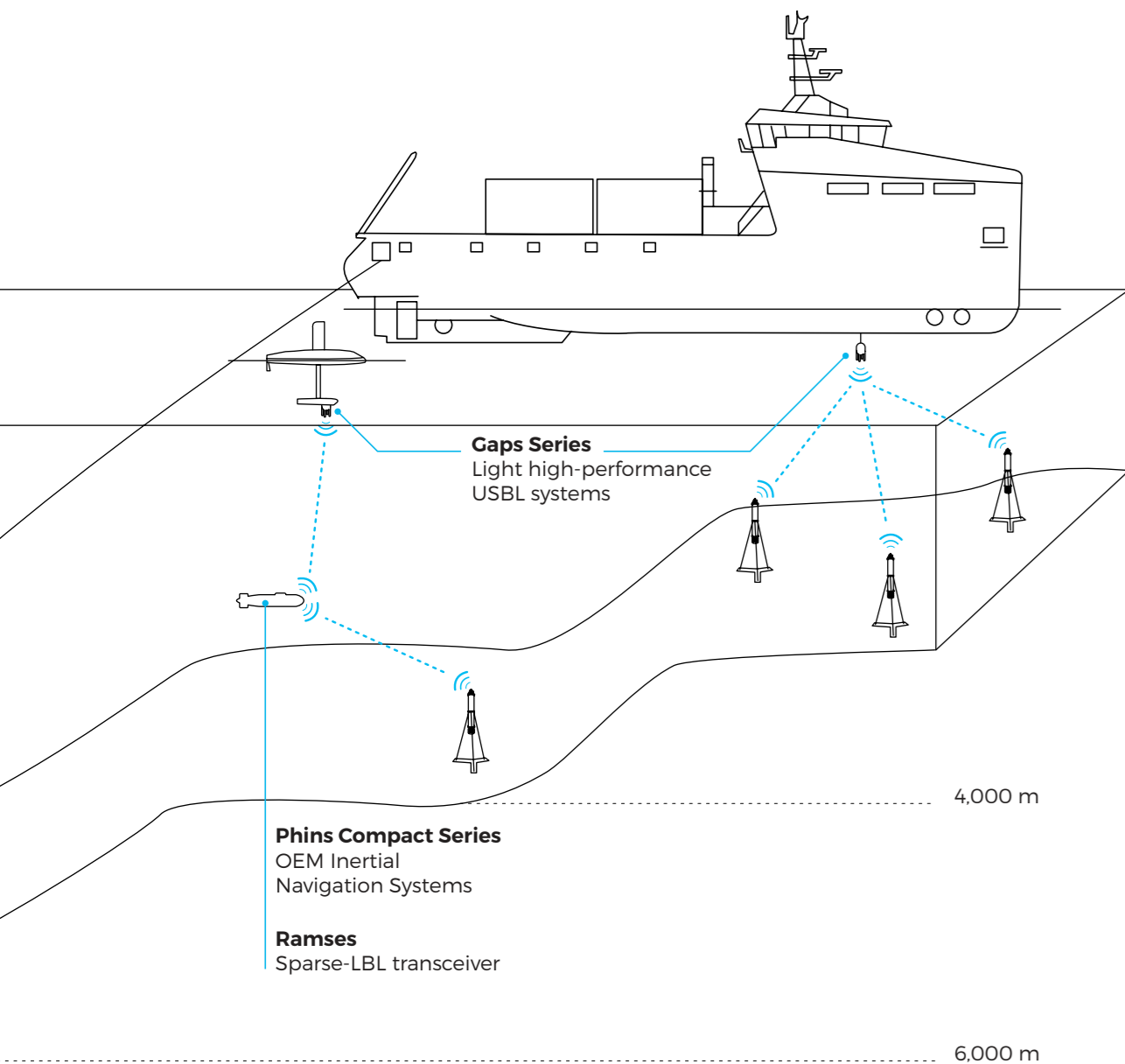## AUV NAVIGATION SOLUTION

- Simultaneous USBL tracking and telemetry from 15 to 4,000 m water depths
- OEM INS aided by telemetry for decimetric positioning

DYNAMIC POSITIONING SOLUTION

- USBL system with embedded INS for extra-redundancy
- 0.1% slant range accuracy
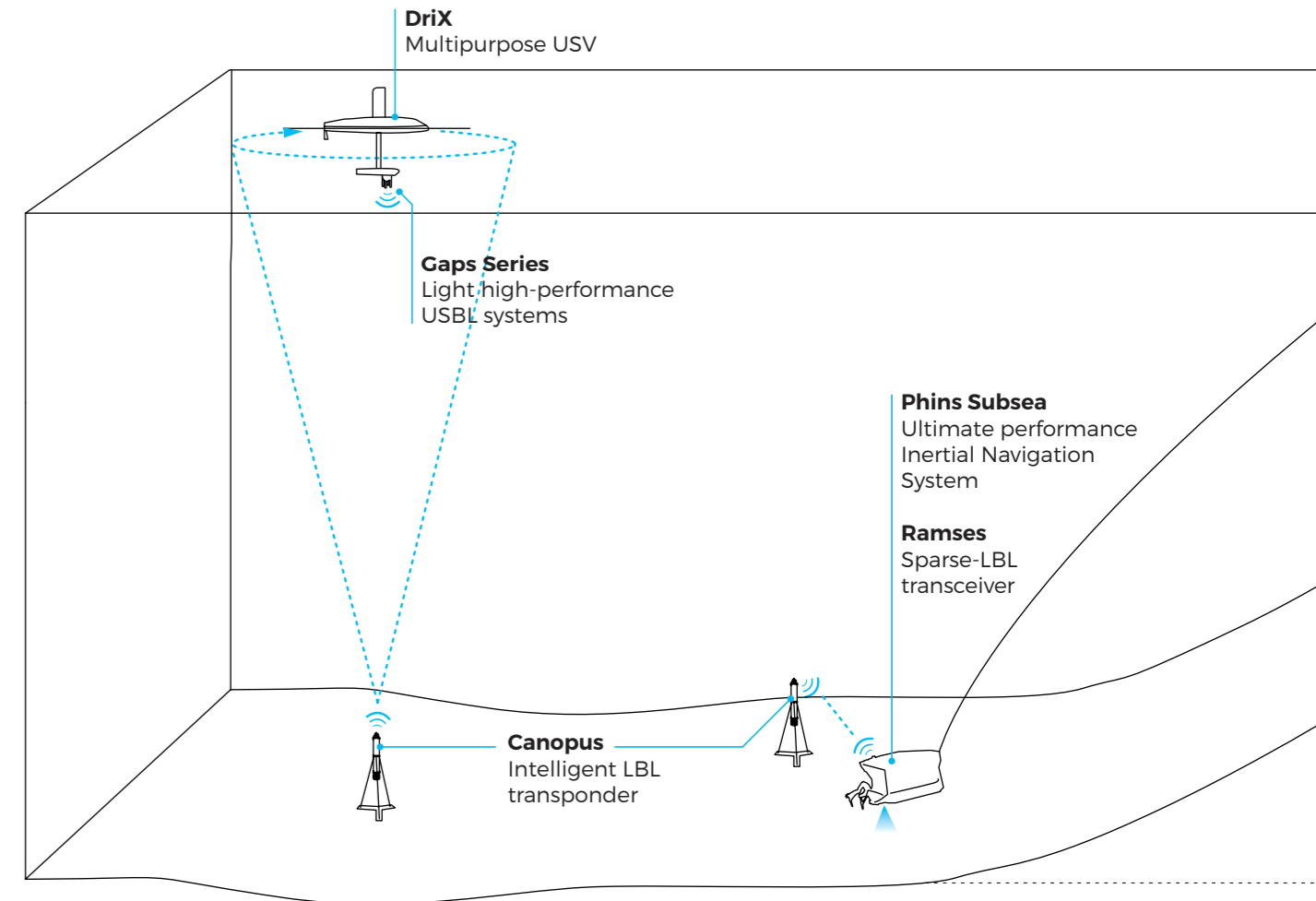- Unrivaled telemetry accuracy from ultra-shallow to deep waters

SOLUTIONS FOR SUBSEA POSITIONING AND NAVIGATION

ASSET SUBSEA POSITIONING SOLUTION

- 20-minute box-in solution
- Decimetric positioning accuracy

ROV NAVIGATION SOLUTION

- Scalable, field-proven and unrivaled performance INS/DVL product range
- Sparse-LBL: one single transponder needed for accurate positioning

Gaps Series
Light high-performance USBL systems

Phins Compact Series
OEM Inertial Navigation Systems

Ramses
Sparse-LBL transceiver

4,000 m

6,000 m

DriX
Multipurpose USV

Gaps Series
Light high-performance USBL systems

Phins Subsea
Ultimate performance Inertial Navigation System

Ramses
Sparse-LBL transceiver

Canopus
Intelligent LBL transponder

INERTIAL SYSTEMS

FOG-BASED INERTIAL NAVIGATION SYSTEMS (INS) FOR ROV/AUV

iXblue's Inertial Navigation Systems (INS) equip over 80% of the subsea vehicles used in the O&G industry. Based on iXblue's Fiber-Optic Gyroscope (FOG) technology, they are robust and maintenance-free systems that offer unrivaled performance. In addition, iXblue partners with the Doppler Velocity Log (DVL) manufacturers to offer a solution where users are able to choose the optimum solution for their project without compromising on performance.
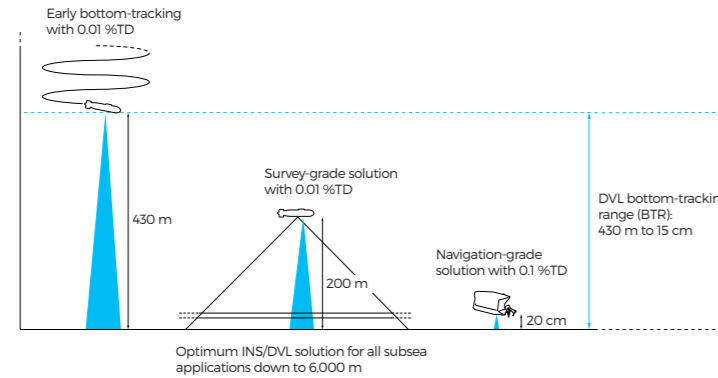

	Octans Nano / OEM	Octans Subsea	Rovins Nano / Phins Compact C3	Rovins / Phins Compact C5	Phins Subsea / Phins Compact C7
	Navigation-grade AHRS	Survey-grade AHRS	Compact navigation-grade INS	Survey-grade INS	High performance deep-water survey-grade INS
Heading accuracy (deg seclat)	0.5	0.1	0.1	0.04	0.01
DVL-aided optimal performance in typical conditions (%TD - CEP50)	n/a	n/a	0.04	0.02	0.01
Roll&Pitch accuracy (deg RMS)	0.1	0.01	0.05	0.01	0.01
Weight in water (kg)	5.5 (Octans Nano) 1.6 (OEM)	6.2	5.5 (Rovins Nano) 1.6 (Phins C3)	6.2 (Rovins) 4.7 (Phins C5)	13 (Phins Subsea) 3.5 (Phins C7)
Depth rating (m)	4,000 (Octans Nano)	3,000	6,000 (Rovins Nano)	3,000 (Rovins)	6,000 (Phins Subsea)

USBL SYSTEMS

LIGHT HIGH-PERFORMANCE USBL SYSTEMS

Gaps Series has been designed to provide accurate location, positioning and tracking of subsea assets, from ultra-shallow to deep water depths. The Gaps Series embds a FOG-based motion sensor for vessel positioning redundancy and subsea telemetry. It is compatible with third-party equipment.
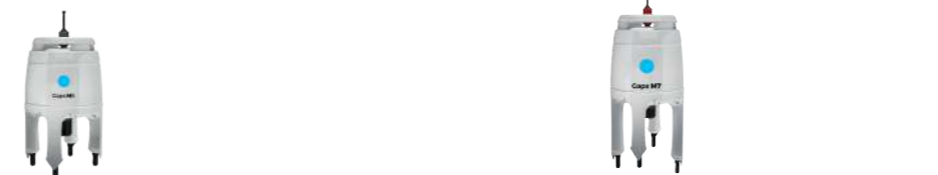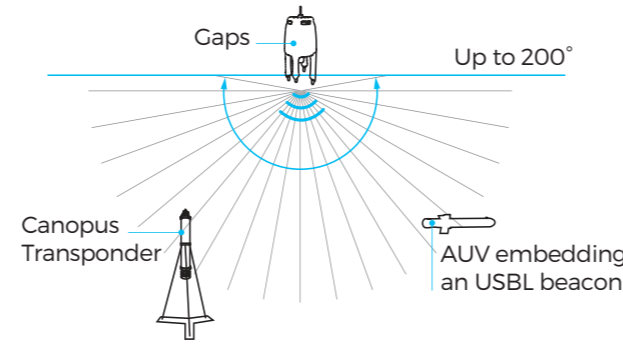

	Gaps M5	Gaps M7
	Compact free-of-export USBL system	Ultimate performance USBL system
Acoustic coverage (Deg)	200	200
Operating range (m)	995	4,000
Positioning accuracy (% slant range)	0.5	0.1
Range accuracy (mm)	20	20
Weight (air/water, kg)	14 / -5	16 / -7

LBL SYSTEMS

6,000 M RATED LBL AND SPARSE-LBL POSITIONING SYSTEMS

iXblue's 6,000 m depth-rated LBL positioning solution brings innovative features for more cost-effective projects. Using Ramses sparse-LBL transceiver with Canopus transponders ensures decimetric positioning with only one single transponder. Canopus transponders include a high-speed communication capability, unrivaled battery life and embedded intelligence.
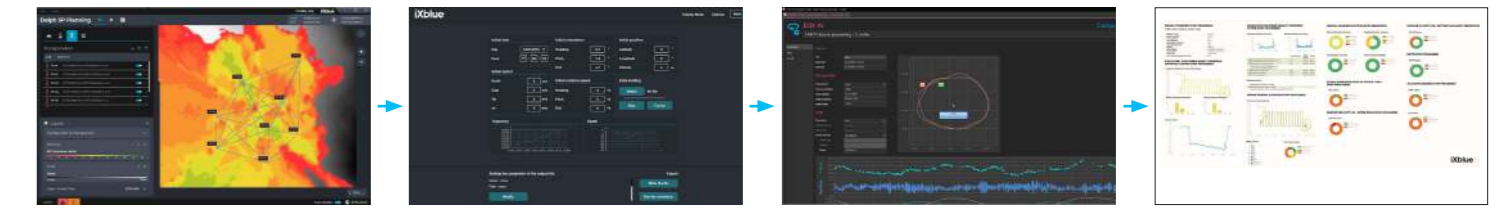

A single Canopus can accurately position a vehicle with sparse-LBL capabilities.
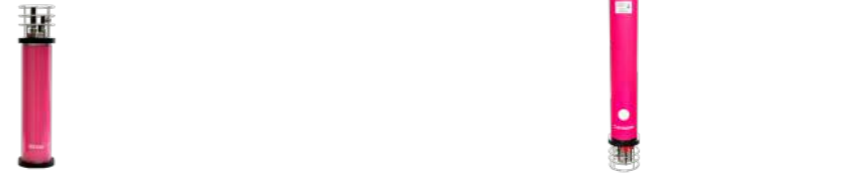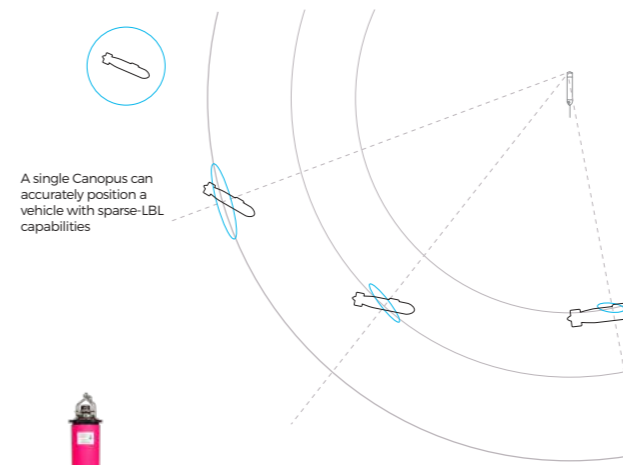
	Ramses	Canopus
	Sparse-LBL transceiver	Intelligent LBL tranponder
Depth rating	6,000	6,000
Accuracy (mm)	< 10	< 10
Autonomy (pings at max sound level)	n/a	2,800 000 (alkaline)
Transducer beam shape	Omnidirectional	n/a
Data telemetry	Yes	Yes
Data logging (Gb)	32	32

DELPH SUBSEA POSITIONING SOFTWARE

INTEGRATED SOFTWARE SUITE FOR SUBSEA POSITIONING DURING THE LIFE OF FIELD

Integrating the full range of iXblue subsea systems, Delph Subsea Positioning (DSP) simplifies the planning, simulation, operation and post-processing of subsea positioning tasks. Comprising four core modules, DSP is an easy-to-use yet powerful package enabling even the most complex subsea operations.

LBL Array Planning
- Import and process Sound Velocity profile
- Import DTM
- Integrate CAD drawings
- Drag and drop transponders
- Dynamically calculate visibility map based on topography and ray bending
- Display acoustic line-of-sight between transponders

Navigation Simulation
- Full simulation of INS/DVL performance
- LBL / Sparse LBL simulation
- Sensor configuration (INS, DVL, USBL, LBL, GNSS...), lever arms, misalignments, & error models
- Environnemental configuration (sound velocity, current etc.)
- Define trajectory in vehicle or geographic reference frame
- Simulate trajectory and generate corresponding synthetic sensor data
- Result evaluation in Delph INS

Operations
- Manage projects
- Configure attached equipment
- Data logging
- Monitor equipment & operations
- User configurable alarms
- Manage transponder Box-in
- Mutual array calibration
- Generate reports
- Configurable data displays
- Data export
- Third-party interfacing

Post-processing (Delph INS)
- Generate QA/QC report
- Offline INS/DVL calibration
- Data visualization & inspection via 1D Graph or 2D map
- Customizable map projections
- Enhanced algorithm processing
- Advanced data import & export capabilities
- Real-time data processing with no plug to the INS edit/modify data, add/remove aiding sensors
- Powerful export tools